

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Green et al.
Title: CELLULAR PANEL AND
METHOD AND APPARATUS
FOR MAKING THE SAME
Appl. No.: To Be Determined
Filing Date: To Be Determined
Examiner: To Be Determined
Art Unit: To Be Determined

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PRELIMINARY AMENDMENT

The present application is a division of co-pending application Serial No. 09/442,090. Prior to examination of the present application, the Applicants respectfully request that the application be amended as follows:

In The Drawings

Please replace FIGURES 1-19 with proposed formal drawings (FIGURES 1-19, with corrections (shown in red ink) to original informal FIGURES 4L, 4P, and 15-17. These amendments have been submitted by the Applicants and approved by the Examiner in related applications.

In The Specification

Please add the following section to the Specification at page 1 after the section titled "DESCRIPTION":

--CROSS-REFERENCE TO RELATED APPLICATIONS

This is a division of co-pending application Serial No. 09/442,090 titled "CELLULAR PANEL AND METHOD AND APPARATUS FOR MAKING THE SAME" filed November 11, 1999, now U.S. Patent No. _____; which is a continuation of U.S.

patent application Serial No. 08/880,569 filed June 23, 1997, now U.S. Patent No. 6,045,890; which is a continuation of U.S. patent application Serial No. 08/273,469 filed July 11, 1994 now U.S. Patent No. 5,888,639; which is a continuation of U.S. patent application 08/273,469 filed July 11, 1994, abandoned, all of which are incorporated by reference herein.--

In accordance with 35 C.F.R. § 1.121, please substitute the following rewritten versions of the text, as amended. The changes are shown explicitly in the attached "Version with Markings to Show Changes Made to the Specification" attached hereto as Appendix A.

Please substitute for page 11, lines 18-20 of the specification, the following version with markings to show changes made to the specification:

Fig. 40 shows the different elements of a sonic horn used throughout the production lines to be described hereafter;

Please substitute for page 25, lines 11-15 of the specification, the following version with markings to show changes made to the specification:

Exemplary specifications for some of the production lines described include a sonic horn like that shown in Fig. 40. The sonic horn is connected to a booster B1 driven by a converter C1 which is fed from a commercial AC power line.

Please substitute for page 38, lines 6-20 of the specification, the following version with markings to show changes made to the specification:

Another method of making a light controlling cellular panel comprising of horizontally elongated vertically aligned cells utilizes an unfolded substrate web 30" identical to that formed by the production line shown in Fig. 13. However, the web 30" is processed differently, as illustrated in Figs. 16-19, to produce a panel 10'" shown in Fig. 15 which shows a portion of the panel 10'". Fig. 16 shows the multi-substrate web 30" with bands of adhesive B and B' applied along the outer longitudinal margin, of the rear sheer substrate sheet 20", and along the front margin of the opaque sheet 19" opposite the inner or front margin of the sheer substrate sheet 20". The web 30" is then cut into strips sequentially to form three-substrate strips S1, S2, S3, etc. as shown in Fig. 17.

Please substitute for page 38, line 26 through page 39, line 19 of the specification, the following version with markings to show changes made to the specification:

As shown in Figs. 16 and 17, the bands of adhesive B'B of each strip thus adhere (a) the front margin 127 of the center opaque substrate sheet 19" of each strip to the outer margin 130 of the front sheer substrate sheet 18" of the strip above it, and (b) the outer margin 129 of the rear sheer substrate sheet 20" of the former strip to the rear margin 131 of the center opaque substrate sheet 19" above it. Figs. 15A and 15B are fragmentary views of the portion of the cellular panel 10''' of Fig. 15, showing the adhesive connections of the identical multi-substrate strips when the panel is expanded. When the outer margin 129 of the rear sheer substrate sheet 20" of the uppermost strip S1 and the front margin 127 of the center opaque substrate sheet 19" of the uppermost strip S1 are fixed in the position they are to assume in the expanded cellular panel 10''', and the rest of the panel 10''' is allowed to drop under the force of gravity, a light controlling panel 10''' is formed comprising horizontally elongated vertically aligned closed tubular cells 12''' as seen in Fig. 15. The front vertical wall 14''' or side of each cell 12''' is formed by the front sheer substrate sheet 18" of one of the multi-substrate strips; the rear vertical wall 16''' or side of the cell 12''' is formed by the rear sheer substrate sheet 20" of the multi-substrate strip above it. The bottom horizontal wall 17''' of each cell 12''' is formed by the center opaque substrate sheet 19" of said one strip; and the top horizontal wall 15''' of that cell is formed by the center opaque substrate sheet 19''' of the strip above it. Stated another way, the front and rear substrate sheets 18", 20" of each strip form respectively the front and rear wall portions of adjacent cells.

Please substitute for page 39, lines 20-38 of the specification, the following version with markings to show changes made to the specification:

In order to better understand the relationship between the various cut and laterally offset laminated multi-substrate strips S1, S2, S3, S4 shown in Fig. 17 that form the expanded panel 10''' in Fig. 15, the front substrate sheet of each strip is designated by the letter F, the center opaque substrate sheet of each strip is designated by the letter C and the rear substrate sheet of each strip is designated by the letter R, with the particular substrate sheet of a given strip being further identified by a

reference number corresponding to the reference number identifying that strip. Similarly, the forwardmost adhesive band of each strip is identified by the letter B' and the rearmost adhesive band of each strip identified by the letter B, with the various adhesive bands of the various strips each identified by a number corresponding to the number of the particular strip involved. Thus, the various substrate sheets, adhesive bands of the various strips shown in Fig. 17 can immediately be identified in Fig. 15.

In The Claims

Please cancel Claims 1-18, 32-35, and 38-59 without prejudice to further prosecution on the merits

In accordance with 35 C.F.R. § 1.121, please substitute for pending Claim 36 the following rewritten versions of the same claim, as amended. The changes are shown explicitly in the attached "Version with Markings to Show Changes Made To The Claims" attached hereto as Appendix B.

36. (Amended Once) The method of Claim 20, wherein the securing of the continuous substrate sheets together is carried out by welding of their longitudinal margins together with sonic welders comprising a vibrating member which presses the substrate sheets to be welded together against an anvil having a pointed profile, so that the substrate sheets being welded are severed at the locations of the points on the profile of the anvil, producing a separated, selvaged strip on the side of the pointed profile adjacent the margin of the substrate sheets and superimposed surfaces of the substrate sheets on the opposite side of the pointed profile of the anvil.

Please add Claims 60-96 as follows:

60. (New) The method of Claim 29, wherein the securing of the continuous substrate sheets together is carried out by welding of their longitudinal margins together with sonic welders comprising a vibrating member which presses the substrate sheets to be welded together against an anvil having a pointed profile, so that the substrate sheets being welded are severed at the locations of the points on the profile of the anvil, producing a separated, selvaged strip on the side of the

pointed profile adjacent the margin of the substrate sheets and superimposed surfaces of the substrate sheets on the opposite side of the pointed profile of the anvil.

61. (New) The method of Claim 60, wherein there is provided the step of flattening the welds at the longitudinal margins of the three-substrate sheets before the segments of the web before or after they are severed from the web are laminated to the other segments thereof.

62. (New) A method for forming a cellular panel for a window covering, the method comprising the steps of:

forming a plurality of tubular cells, each consisting of a first sheet and a second sheet, and each having a pair of longitudinal margins;

laminating the plurality of tubular cells.

63. (New) The method of Claim 62 wherein the step of forming the plurality of tubular cells includes:

positioning the longitudinal margins of the first sheet proximate the longitudinal margins of the second sheet

joining the first sheet to the second sheet with an ultrasonic weld along their respective longitudinal margins;

64. (New) The method of Claim 64 further including the step of reforming each tubular cell so that the welds are transitioned from the longitudinal margins to positions on top and bottom of a flat reformed cell.

65. (New) The method of Claim 64 wherein the step of reforming each tubular cell includes laterally offsetting the weld of a first tubular cell from the weld of a second tubular cell.

66. (New) The method of Claim 64 wherein the reforming of each tubular cell includes rotating the tubular cell, expanding the tubular cell, and flattening the tubular cell.

67. (New) The method of Claim 66 wherein each tubular cell is rotated by passing it through spaced apart vertical rods.

68. (New) The method of Claim 66 wherein the step of expanding each tubular cell includes passing the expanded tubular cell around an insert.

69. (New) The method of Claim 68 wherein the insert includes a roller configured to keep each tubular cell expanded in a vertical plane and a guidance plate configured to keep the tubular cell expanded in a horizontal direction.

70. (New) The method of Claim 69 further including the step of providing guidance members configured to keep the insert from shifting out of position.

71. (New) The method of Claim 68 further including the step of passing the tubular cells between a pair of stationary grooved sleeves configured to laterally offset the welds.

72. (New) The method of Claim 66 wherein the step of flattening each tubular cell includes vibrating the reformed cell against a rotating anvil having recessed portion configured to receive the welds.

73. (New) The method of Claim 62 wherein the step of laminating the plurality of tubular cells includes applying an adhesive between adjacent tubular cells and successively stacking them.

74. (New) The method of Claim 73 wherein the adhesive is applied to a top portion of a first tubular cell as a pair of spaced apart bands.

75. (New) The method of Claim 74 wherein at least one of the spaced apart bands is applied over at least one of the welds.

76. (New) The method of Claim 62 further including the step of passing the first and second sheets through a plurality of rollers configured to substantially maintain a constant tension in the first and second sheets.

77. (New) The method of Claim 76 further including the step of moving at least some of the plurality of rollers with a feedback control system.

78. (New) The method of Claim 77 wherein the plurality of rollers includes a photo-cell controlled edge guidance assembly.

79. (New) The method of Claim 62 further including the step of slitting the first and second sheets along their longitudinal margins adjacent the welds.

80. (New) The method of Claim 79 wherein the welds are formed by an anvil configured to weld the first and second sheets and slit the longitudinal edges.

81. (New) The method of Claim 62 further including the step of relieving stresses produced in the reformed cell.

82. (New) The method of Claim 62 further including the steps of cutting the web into a first strip and a second strip and positioning the first strip above the second strip.

83. (New) The method of Claim 82 wherein the positioning includes raising the second strip to adhere to the bottom portion of the first strip.

84. (New) A method for forming a cellular panel for a window covering, the method comprising the steps of:

providing a first sheet and a second sheet, each having a pair of longitudinal margins;

forming a first tubular cell by joining at least one longitudinal margin of the first sheet to at least one longitudinal margin of the second sheet;

adhering the first tubular cell to a second tubular cell.

85. (New) The method of Claim 84, further including the step of reforming the first tubular cell by rotating the first tubular cell, expanding the first tubular cell, and flattening the first tubular cell.

86. (New) The method of Claim 85 wherein the reforming step includes a step of laterally offsetting a first weld relative to a second weld.

87. (New) The method of Claim 85 further including the step of passing the expanded first tubular cell around an insert prior to being flattened.

88. (New) The method of Claim 87 further including the step of passing the first tubular cell between a pair of stationary grooved sleeves configured to laterally offset the welds.

89. (New) The method of Claim 85 wherein the flattening the first tubular cell includes vibrating the reformed first tubular cell against a rotating anvil having recessed portion configured to receive the welds.

90. (New) The method of Claim 84 wherein the adhering step includes applying a pair of spaced apart bands of adhesive.

91. (New) A method for forming a cellular panel for a window covering, the method comprising the steps of:
providing a first sheet and a second sheet;
forming a tubular cell by joining the first sheet to the second sheet;
adhering a section of the tubular cell to a previously formed section of the tubular cell.

92. (New) The method of Claim 91 wherein the first and second sheets each include longitudinal margins and wherein the first and second sheets are joined along their longitudinal margins.

93. (New) The method of Claim 92 wherein the step of joining the first and second sheets includes providing ultrasonic welds along their respective longitudinal margins.

94. (New) The method of Claim 91 wherein the first sheet is made of a first material, and the second sheet is made of a second material different than the first material.

95. (New) The method of Claim 94 further including the step of reforming the tubular cell so that the welds are transitioned from the longitudinal edges to positions on top and bottom of a flat reformed web.

96. (New) The method of Claim 95 wherein the step of reforming the tubular cell includes rotating the tubular cell, expanding the tubular cell, and flattening the tubular cell.

REMARKS

The present application is a division of co-pending application Serial No. 09/442,090. The Applicants have cancelled original Claims 1-18, 32-35, and 38-59 without prejudice to further prosecution on the merits. Claims 60-96 have been added. The Applicant requests consideration and allowance of Claims 19-31, 36, 37, and 60-96.

Amendments to original informal FIGURES 4L, 4P, and 15-17 (shown in red ink), and to the Specification have been previously submitted and approved by the Examiner in the parent case.

The Applicants expressly disavow any and all claim amendments and remarks (including remarks directed to or about any cited reference) made in connection with the parent applications (Serial Nos. 09/442,090; 08/880,569; 08/273,469; 08/273,469), or in connection with any related application. The Applicants do not intend any prior claim amendment or remark in the parent applications or any related application to have any effect on the prosecution or scope of any claim in the present application.

No new matter has been added.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date 7/23/01

By Scott D. Anderson

FOLEY & LARDNER
Firstar Center
777 East Wisconsin Avenue
Milwaukee, Wisconsin 53202-5367
Telephone: (414) 297-5740
Facsimile: (414) 297-4900

Scott D. Anderson
Attorney for Applicant
Registration No. 46,521

APPENDIX A

Version with Markings to Show Changes Made to the Specification

App. No. 09/488,956

Atty. Dkt. No. 077056-0359

Please substitute for page 11, lines 18-20 of the specification the following version with markings to show changes made to the specification:

Fig. [4P] 4Q shows the different elements of a sonic horn used throughout the production lines to be described hereafter;

Please substitute for page 25, lines 11-15 of the specification the following version with markings to show changes made to the specification:

Exemplary specifications for some of the production lines described include a sonic horn like that shown in Fig. [4P] 4Q. The sonic horn is connected to a booster B1 driven by a converter C1 which is fed from a commercial AC power line.

Please substitute for page 38, lines 6-20 of the specification the following version with markings to show changes made to the specification:

Another method of making a light controlling cellular panel comprising of horizontally elongated vertically aligned cells utilizes an unfolded substrate web 30" identical to that formed by the production line shown in Fig. 13. However, the web 30" is processed differently, as illustrated in Figs. 16-19, to produce a panel 10" shown in Fig. 15 which shows a portion of the panel 10". Fig. 16 shows the multi-substrate web 30" with bands of adhesive B and B' applied along the outer longitudinal margin, [or the front] of the rear sheer substrate sheet [18"] 20", and along the [rear margin] front margin of the opaque sheet 19" opposite the inner or front margin of the sheer substrate sheet 20". The web 30" is then cut into strips sequentially to form three-substrate strips S1, S2, S3, etc. as shown in Fig. 17.

Please substitute for page 38, line 26 through page 39, line 19 of the specification the following version with markings to show changes made to the specification:

As shown in Figs. 16 and 17, the bands of adhesive [B,B'] B'B of each strip thus adhere (a) the [rear margin] front margin 127 of the center opaque substrate sheet 19" of each strip to the outer margin 130 of the [rear sheer] front sheer substrate sheet 18" of the strip above it, and (b) the outer margin 129 of the [front sheer] rear sheer substrate sheet 20" of the former strip to the [front margin] rear margin 131 of the center opaque substrate sheet 19" above it. Figs. 15A and 15B are fragmentary views of the portion of the cellular panel

10" of Fig. 15, showing the adhesive connections of the identical multi-substrate strips when the panel is expanded. When the outer margin 129 of the [front sheer] rear sheer substrate sheet [18"] 20" of the uppermost strip S1 and the [rear margin] front margin 127 of the center opaque substrate sheet 19" of the uppermost strip S1 are fixed in the position they are to assume in the expanded cellular panel 10", and the rest of the panel 10" is allowed to drop under the force of gravity, a light controlling panel 10" is formed comprising horizontally elongated vertically aligned closed tubular cells 12" as seen in Fig. 15. The front vertical wall 14" or side of each cell 12" is formed by the front sheer substrate sheet 18" of one of the multi-substrate strips; the rear vertical wall 16" or side of the cell 12" is formed by the rear sheer substrate sheet 20" of the multi-substrate strip above it. The bottom horizontal wall 17" of each cell 12" is formed by the center opaque substrate sheet 19" of said one strip; and the top horizontal wall 15" of that cell is formed by the center opaque substrate sheet 19" of the strip above it. Stated another way, the front and rear substrate sheets 18", 20" of each strip form respectively the front and rear wall portions of adjacent cells.

Please substitute for page 39, lines 20-38 of the specification the following version with markings to show changes made to the specification:

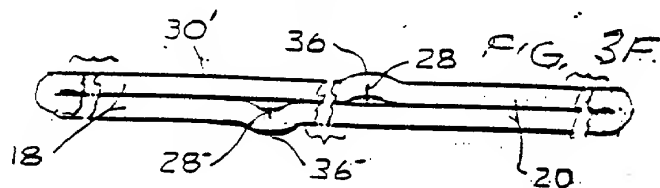
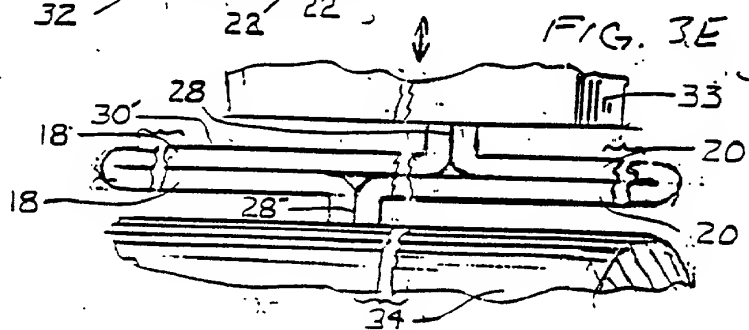
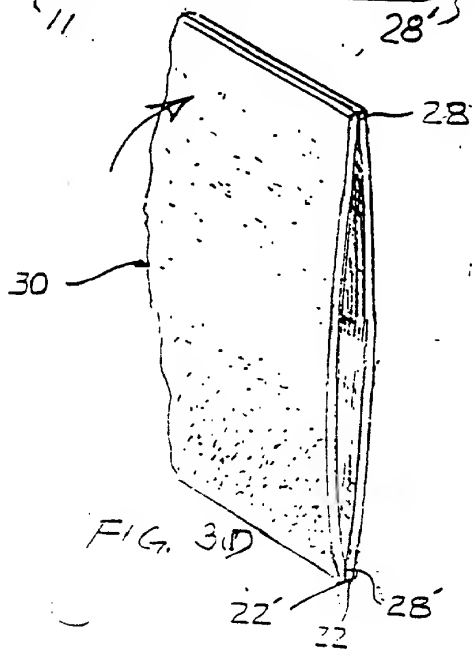
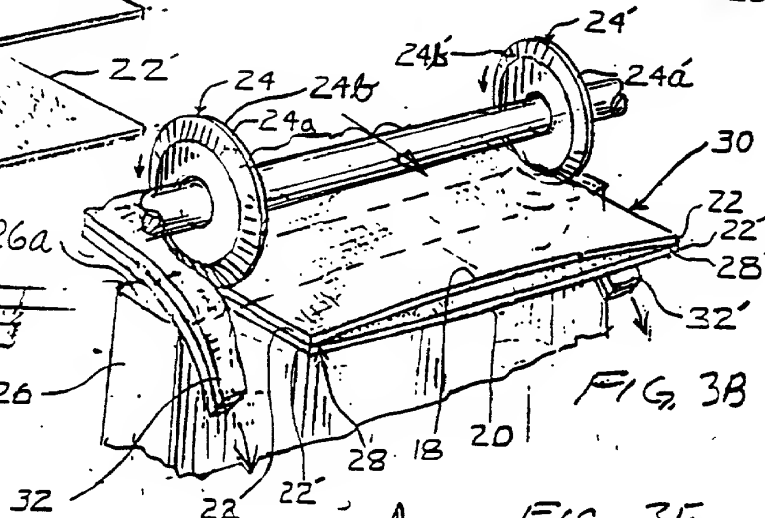
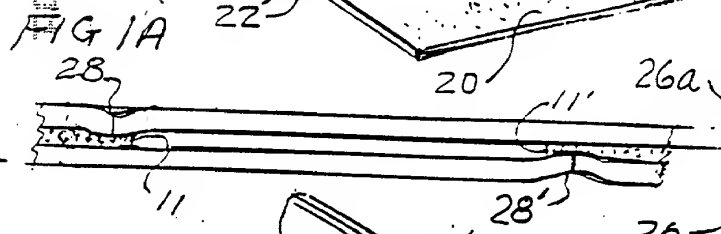
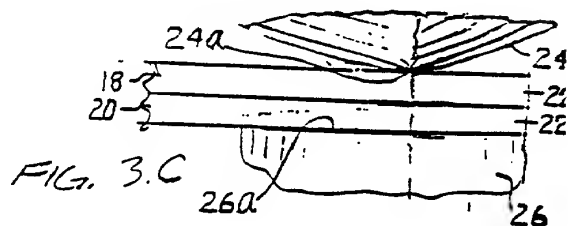
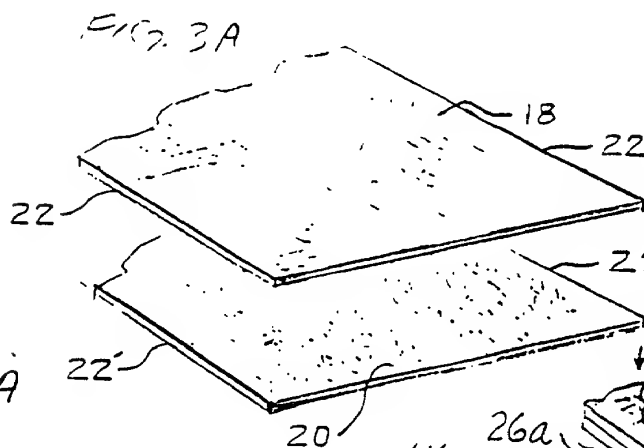
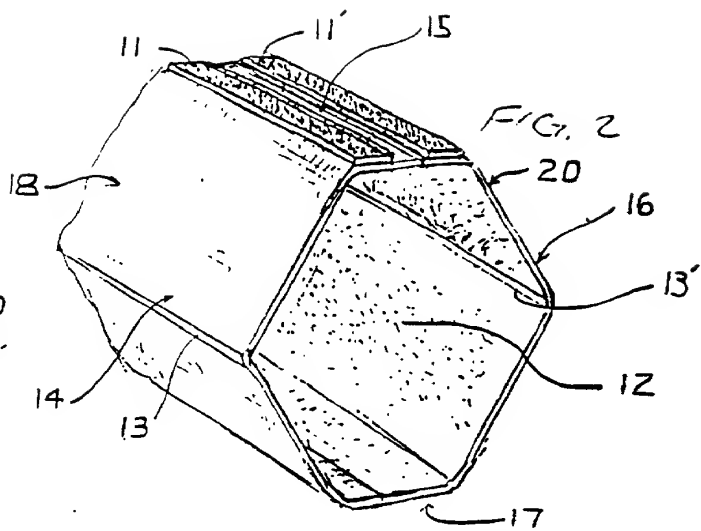
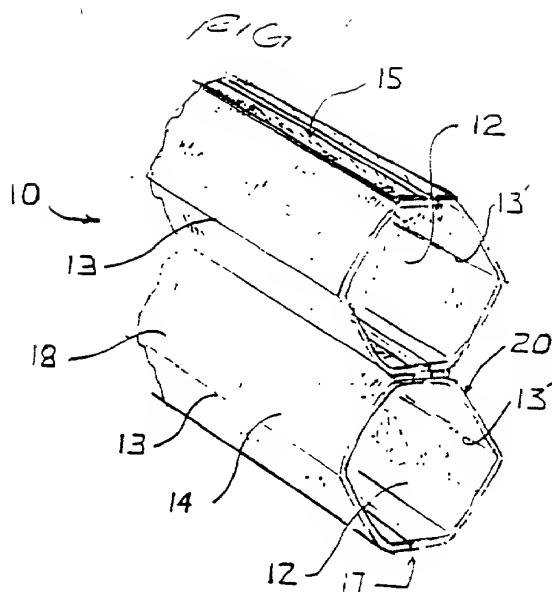
In order to better understand the relationship between the various cut and laterally offset laminated multi-substrate strips S1, S2, S3, S4 shown in Fig. 17 that form the expanded panel 10" in Fig. 15, the front substrate sheet of each strip is designated by the letter F, the center opaque substrate sheet of each strip is designated by the letter C and the rear substrate sheet of each strip is designated by the letter R, with the particular substrate sheet of a given strip being further identified by a reference number corresponding to the reference number identifying that strip. Similarly, the forwardmost adhesive band of each strip is identified by the letter [B] B' and the rearmost adhesive band of each strip identified by the letter [B'] B, with the various adhesive bands of the various strips each identified by a number corresponding to the number of the particular strip involved. Thus, the various substrate sheets, adhesive bands of the various strips shown in Fig. 17 can immediately be identified in Fig. 15.

APPENDIX B

Version with Markings to Show Changes Made to the Claims

Atty. Dkt. No. 77056-359

36. (Amended Once) The method of Claim 20 [or 29], wherein the securing of the continuous substrate sheets together is carried out by welding of their longitudinal margins together with sonic welders comprising a vibrating member which presses the substrate sheets to be welded together against an anvil having a pointed profile, so that the substrate sheets being welded are severed at the locations of the points on the profile of the anvil, producing a separated, selvedged strip on the side of the pointed profile adjacent the margin of the substrate sheets and superimposed surfaces of the substrate sheets on the opposite side of the pointed profile of the anvil.



Fr. 4C

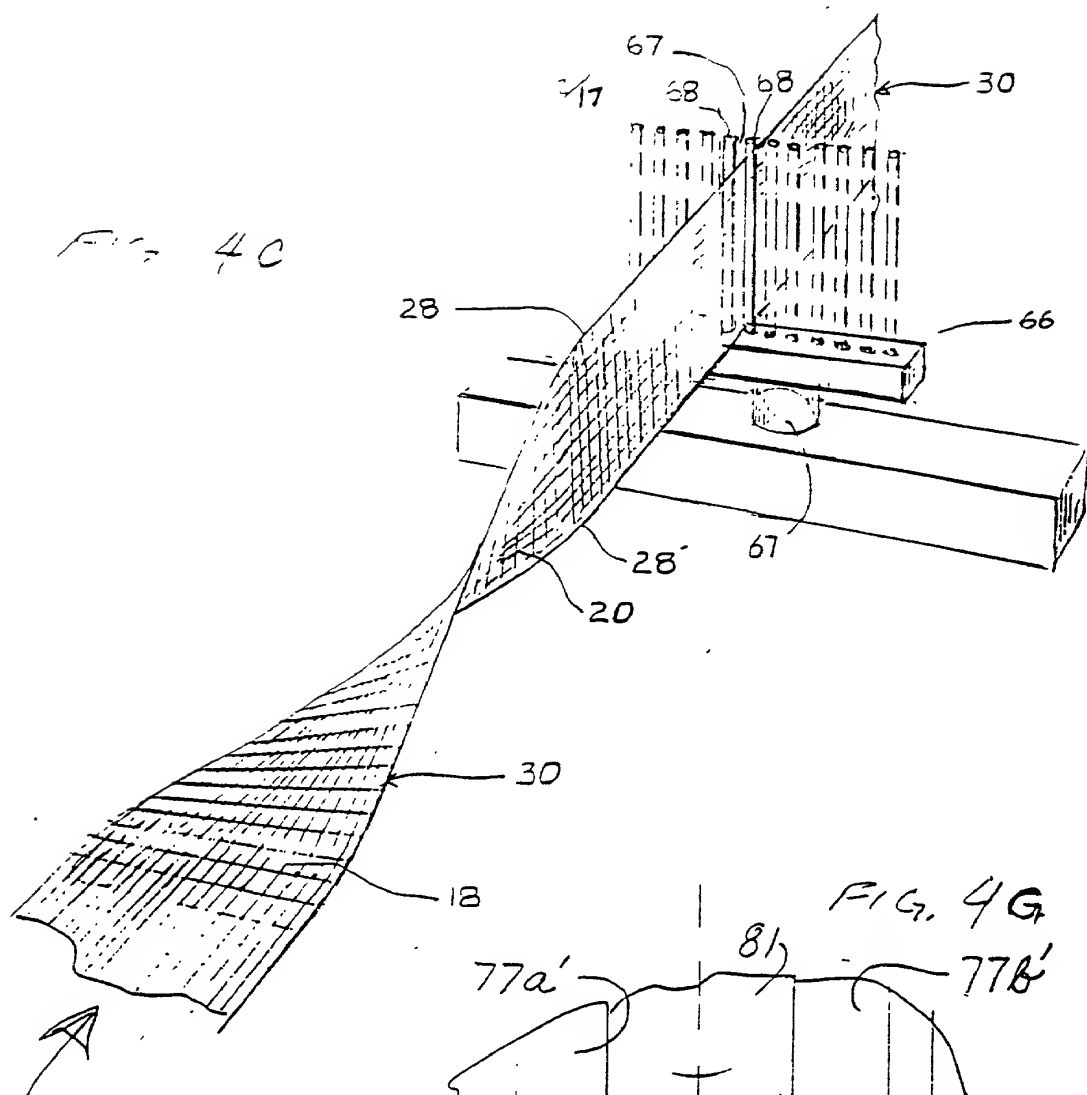


FIG. 4G

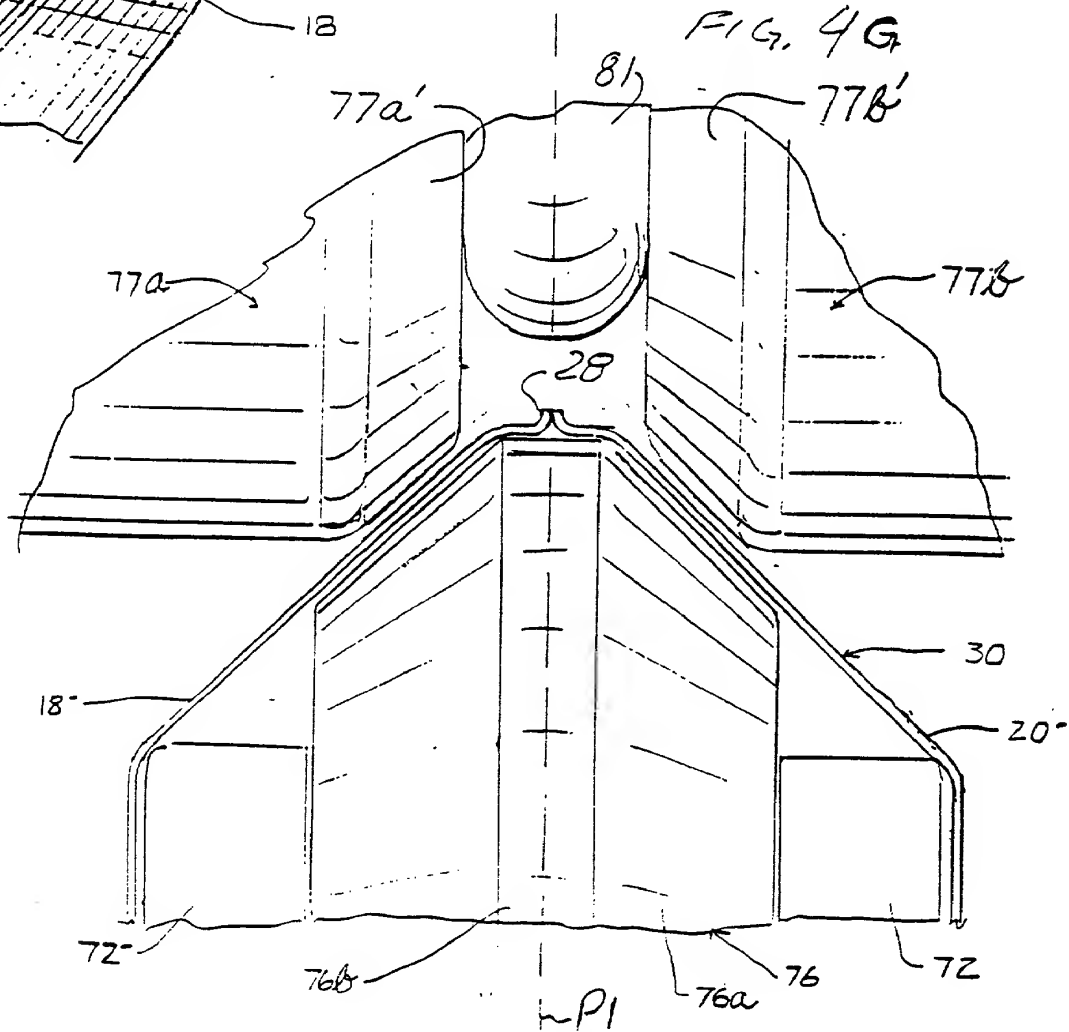


FIG. 4D

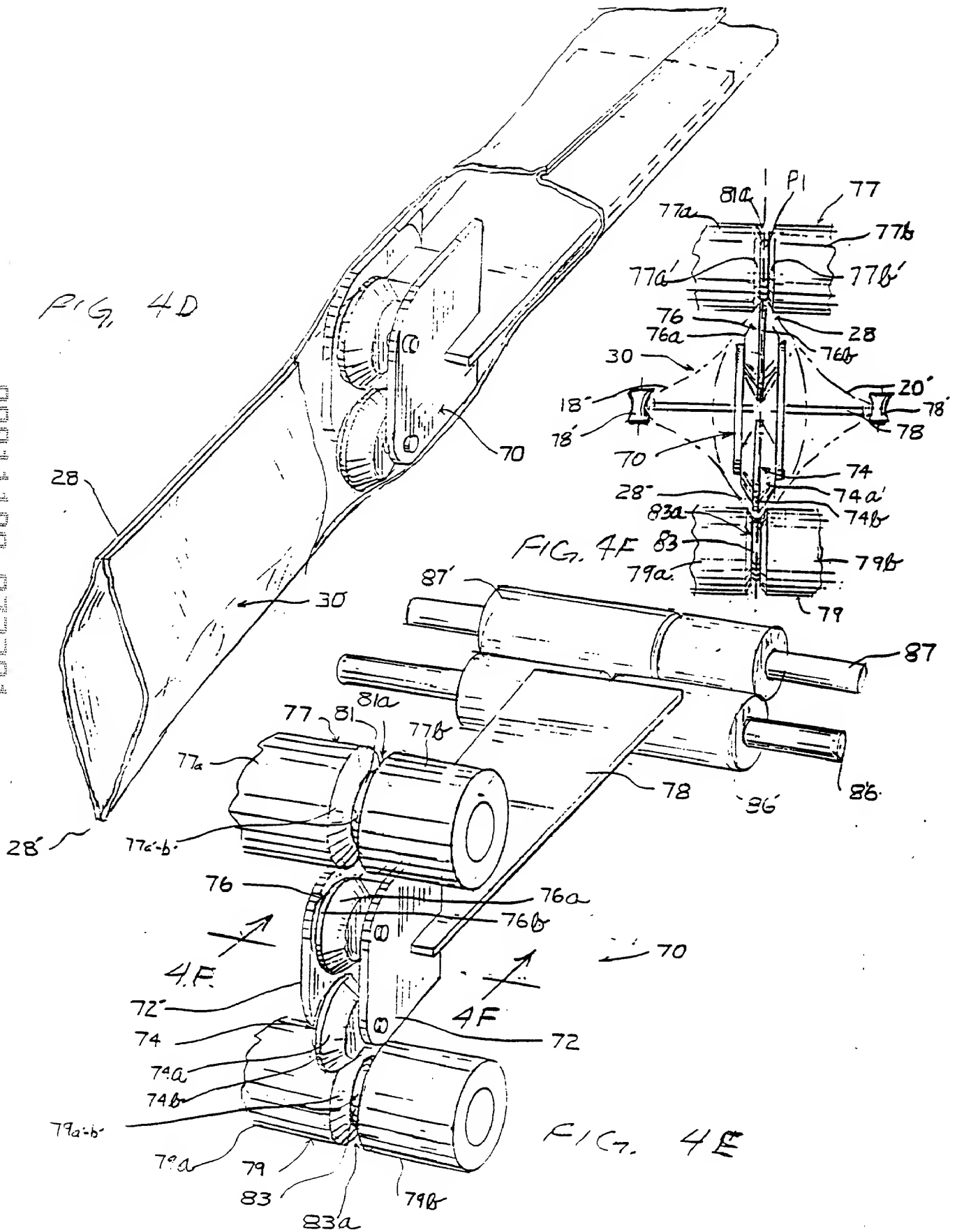


FIG. 4N

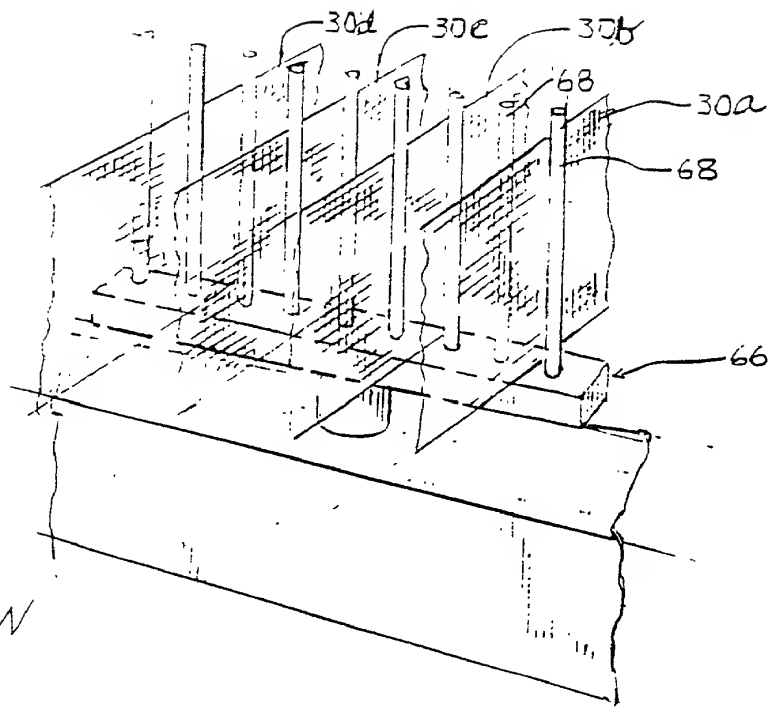


FIG. 4N

FIG. 4J

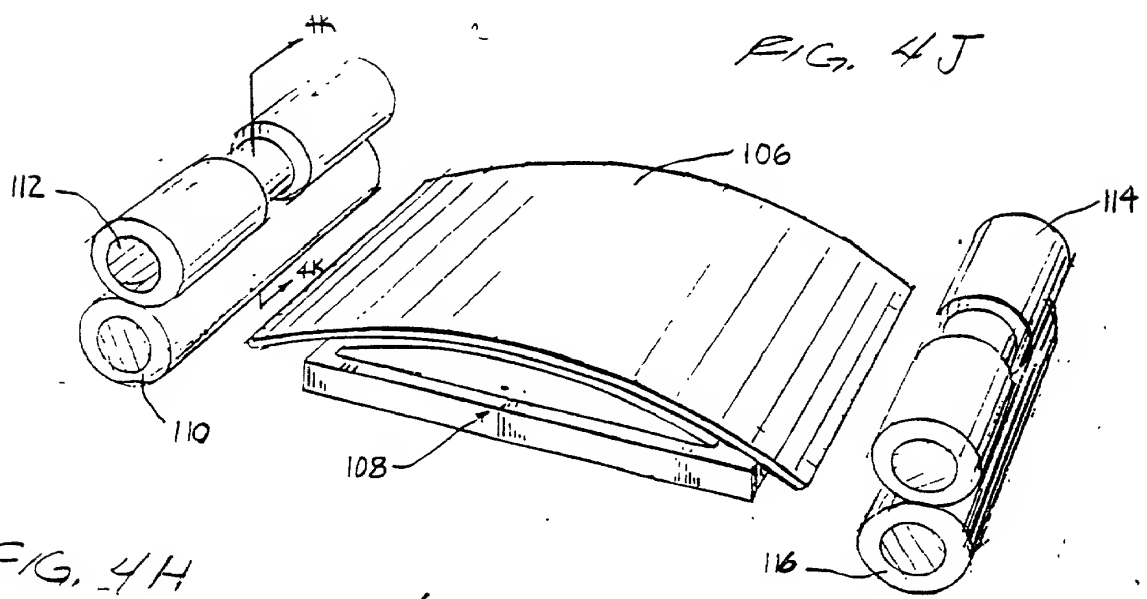


FIG. 4H

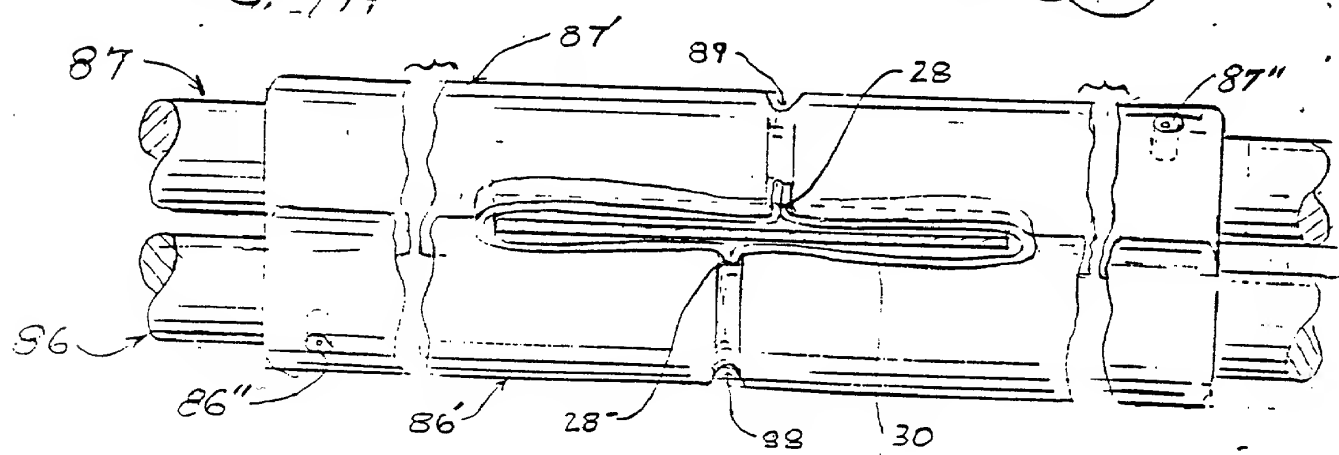


FIG. 4I

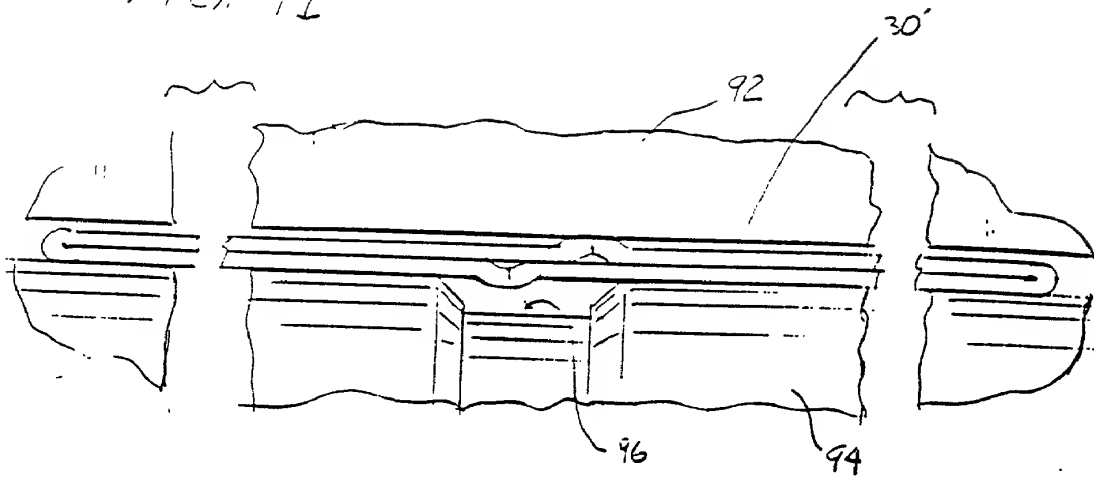


FIG. 4I

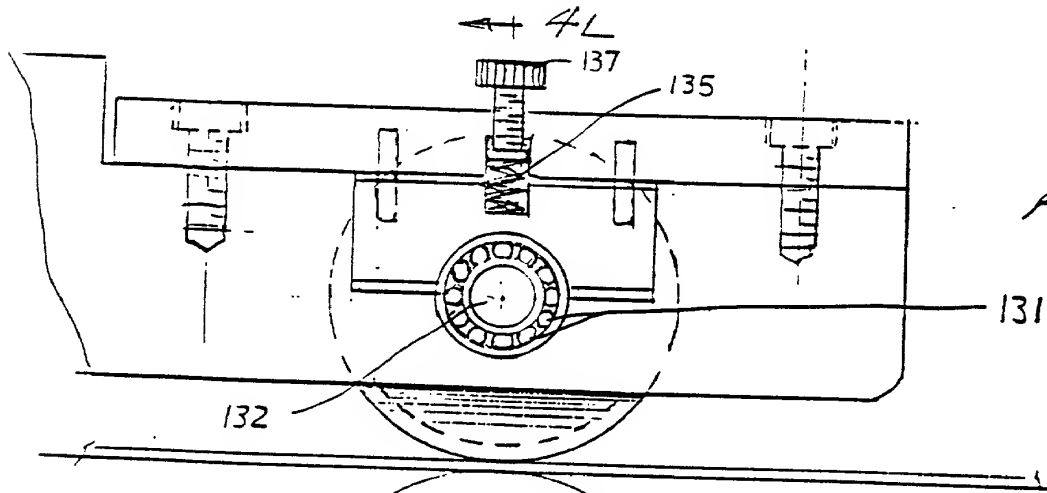


FIG. 4K

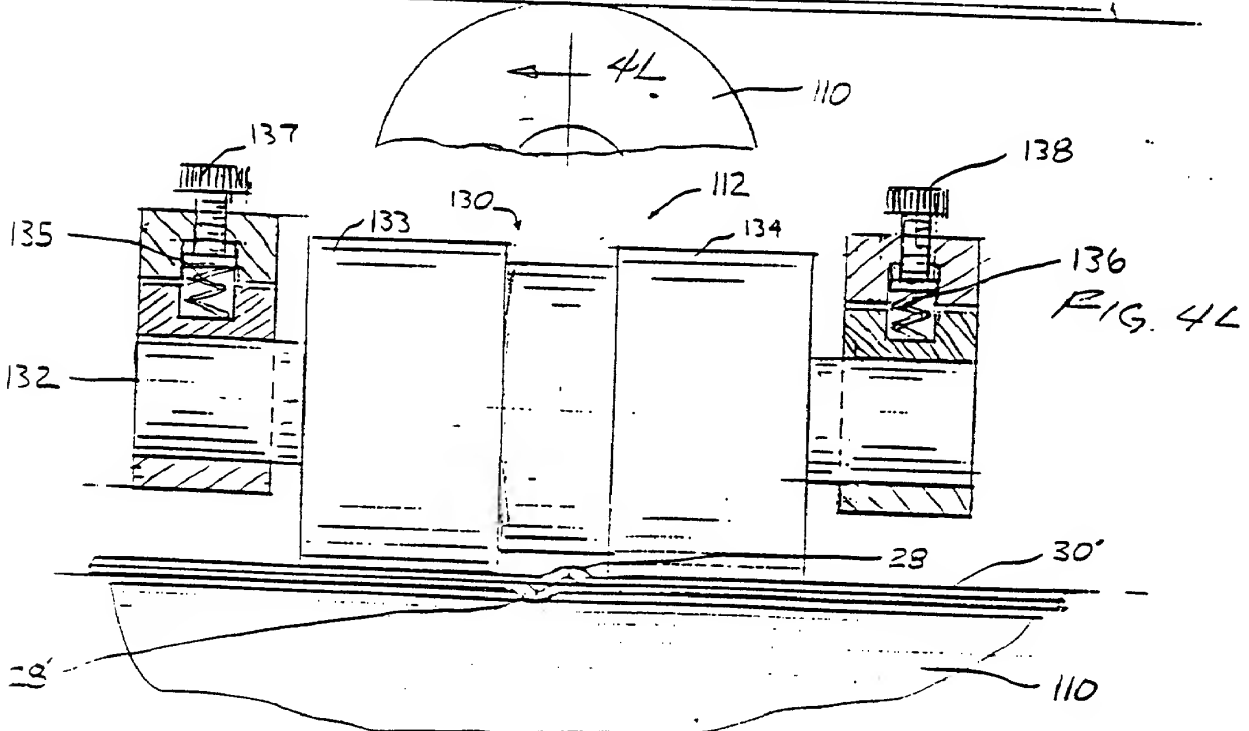


FIG. 4L

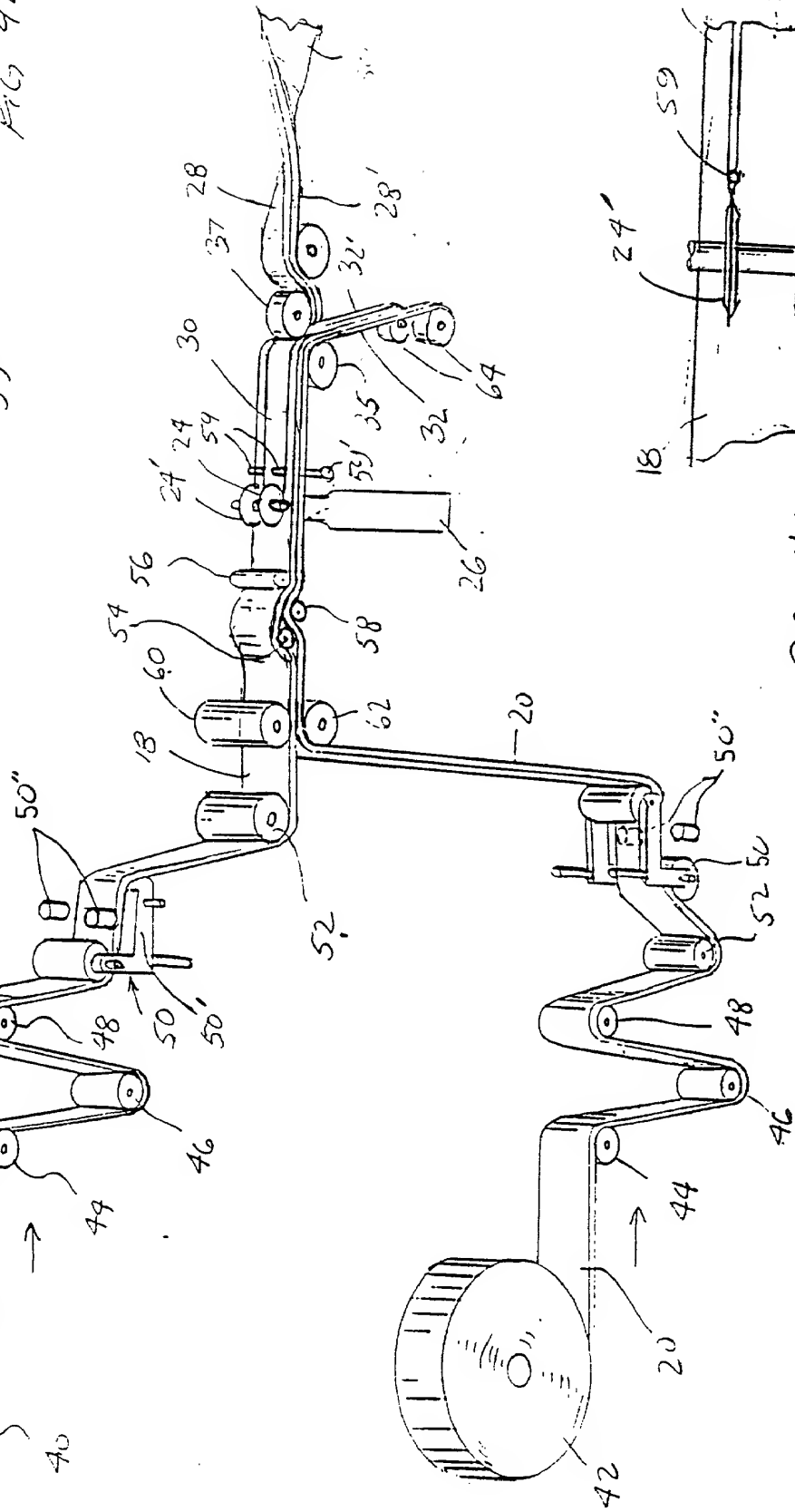
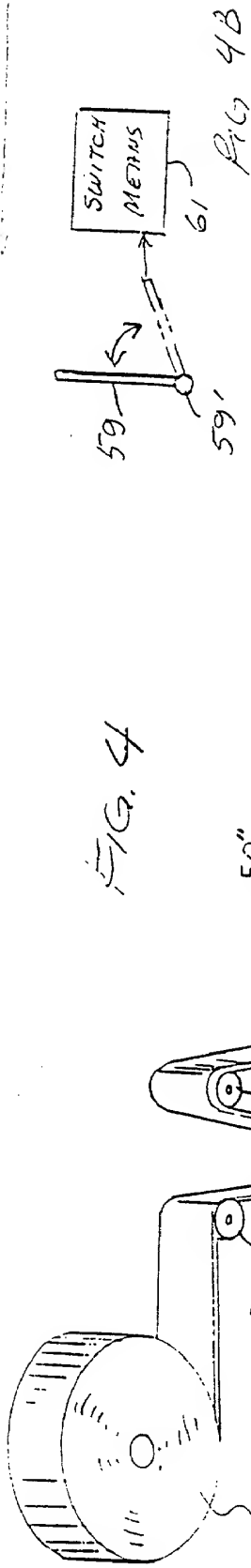


FIG. 4

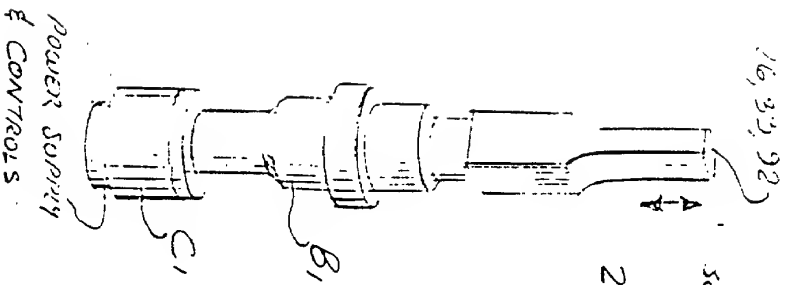
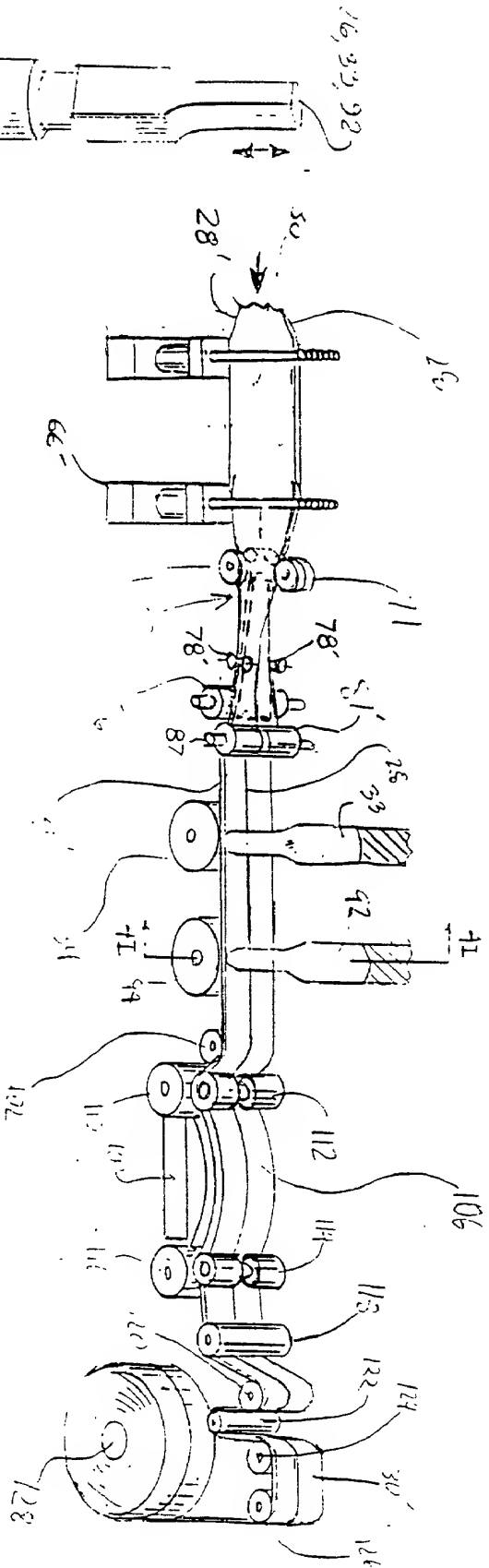


FIG. 40

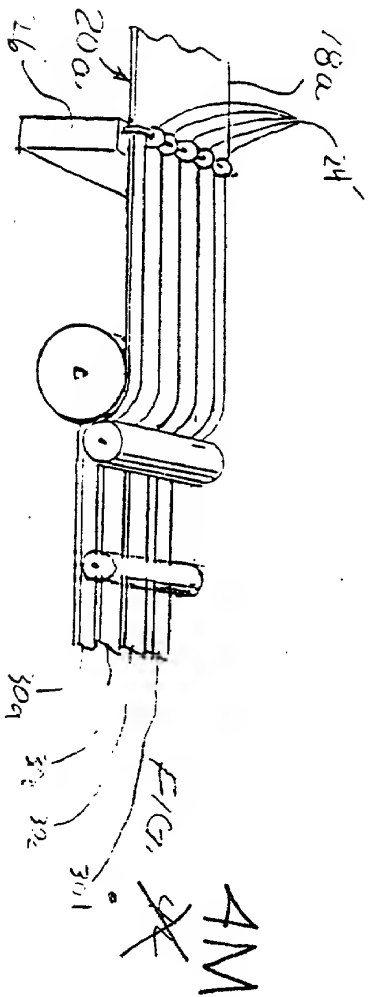


FIG. 4M

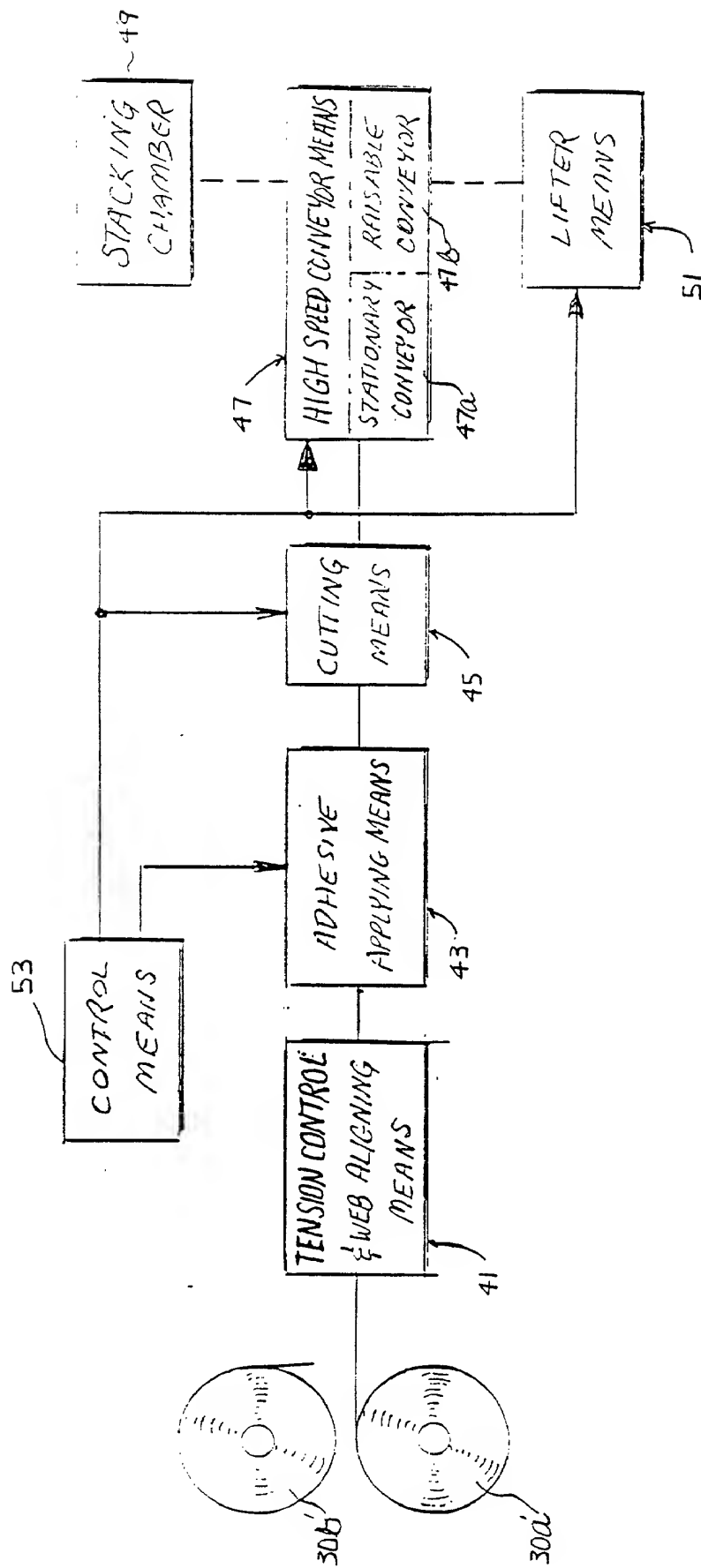


FIG. 5

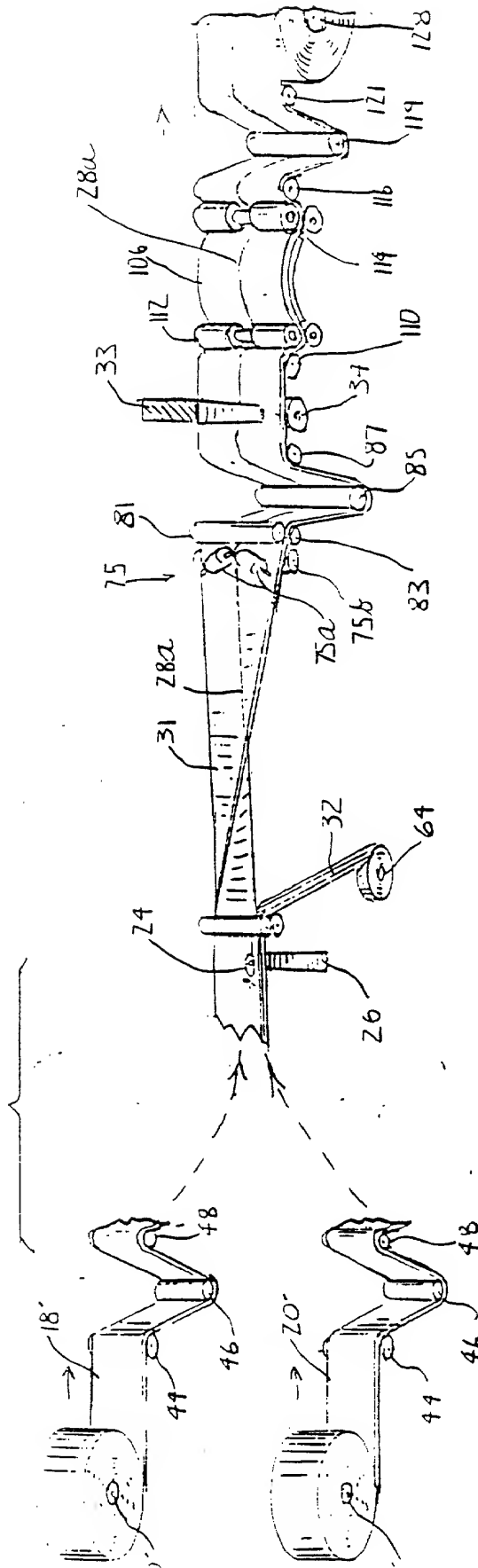


FIG. 9

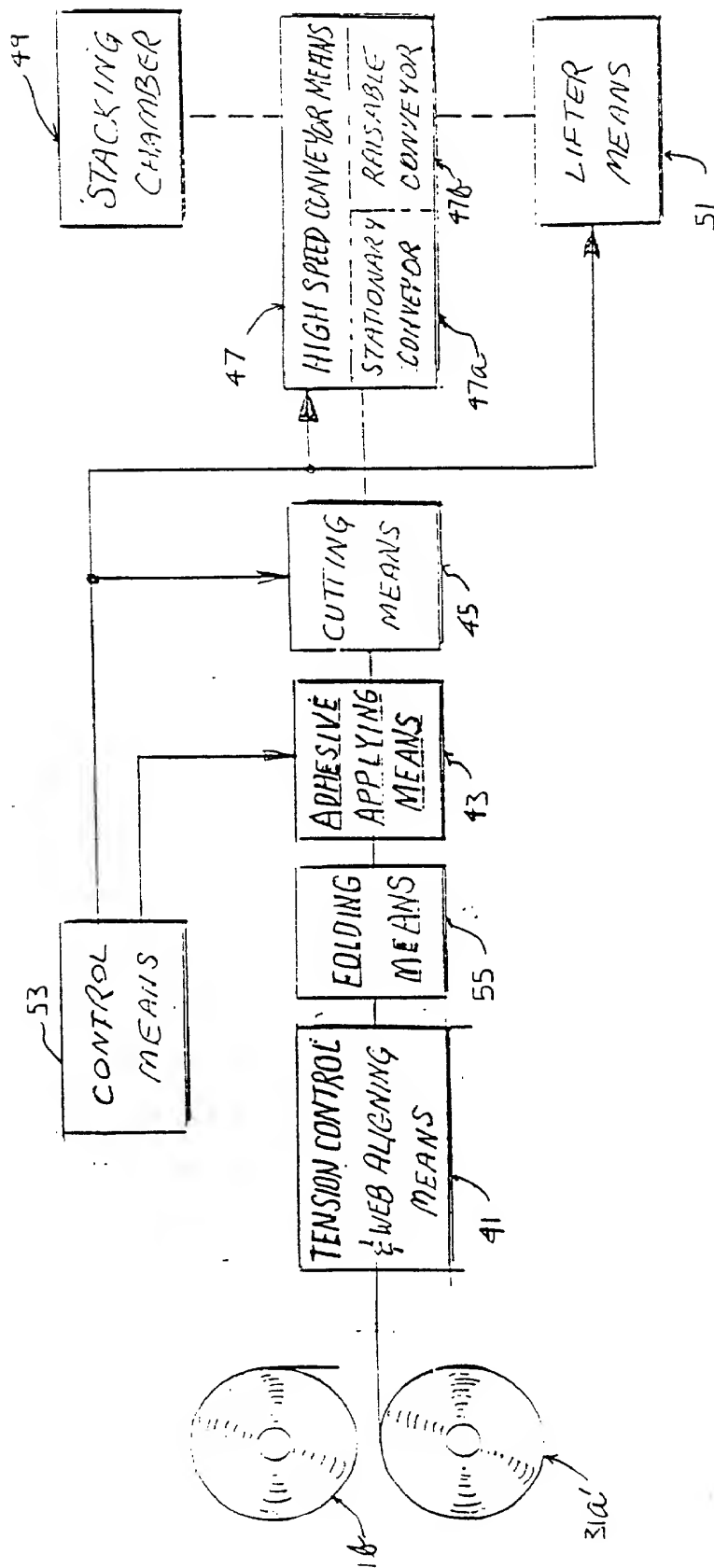
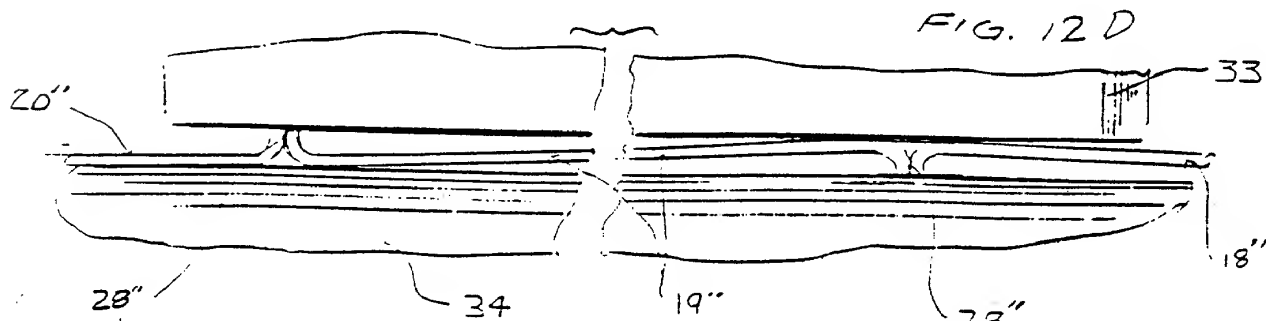
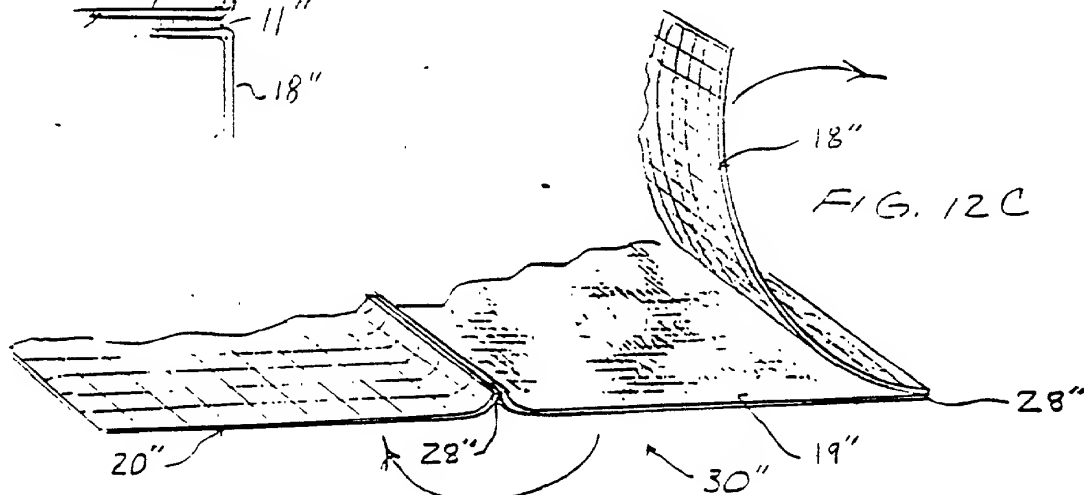
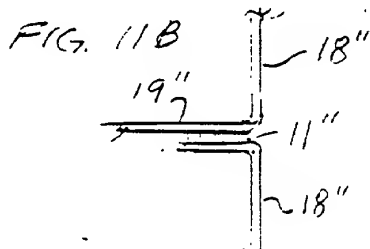
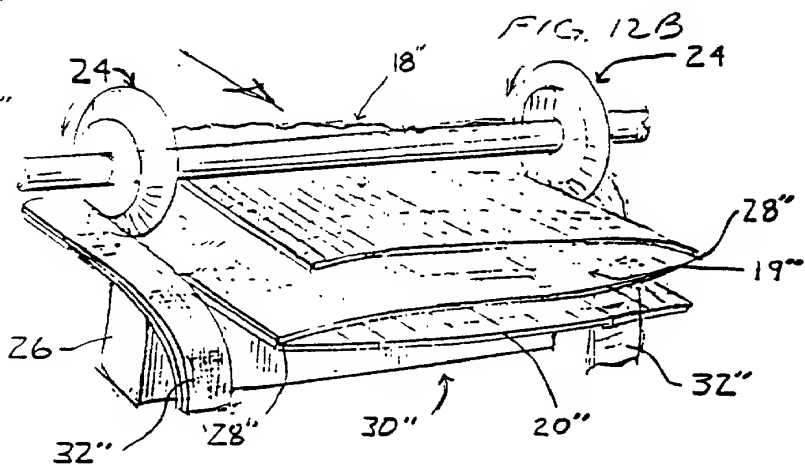
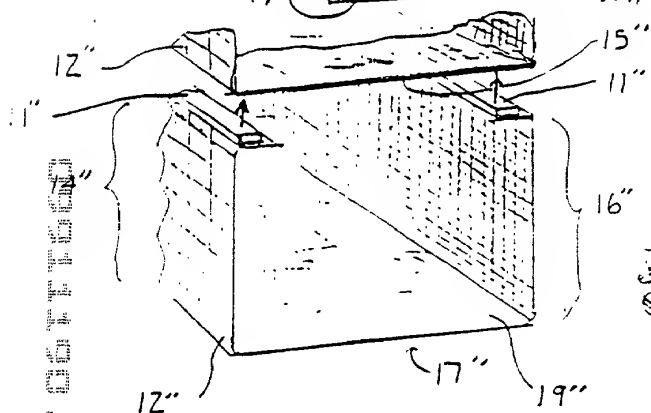
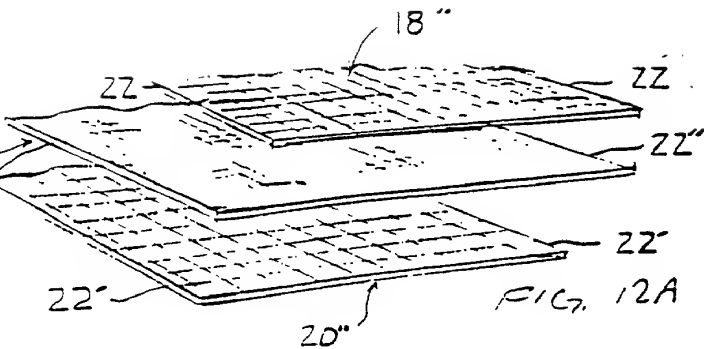
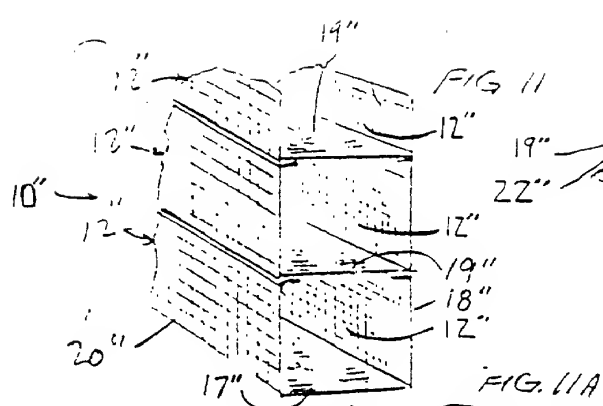


Fig. 10



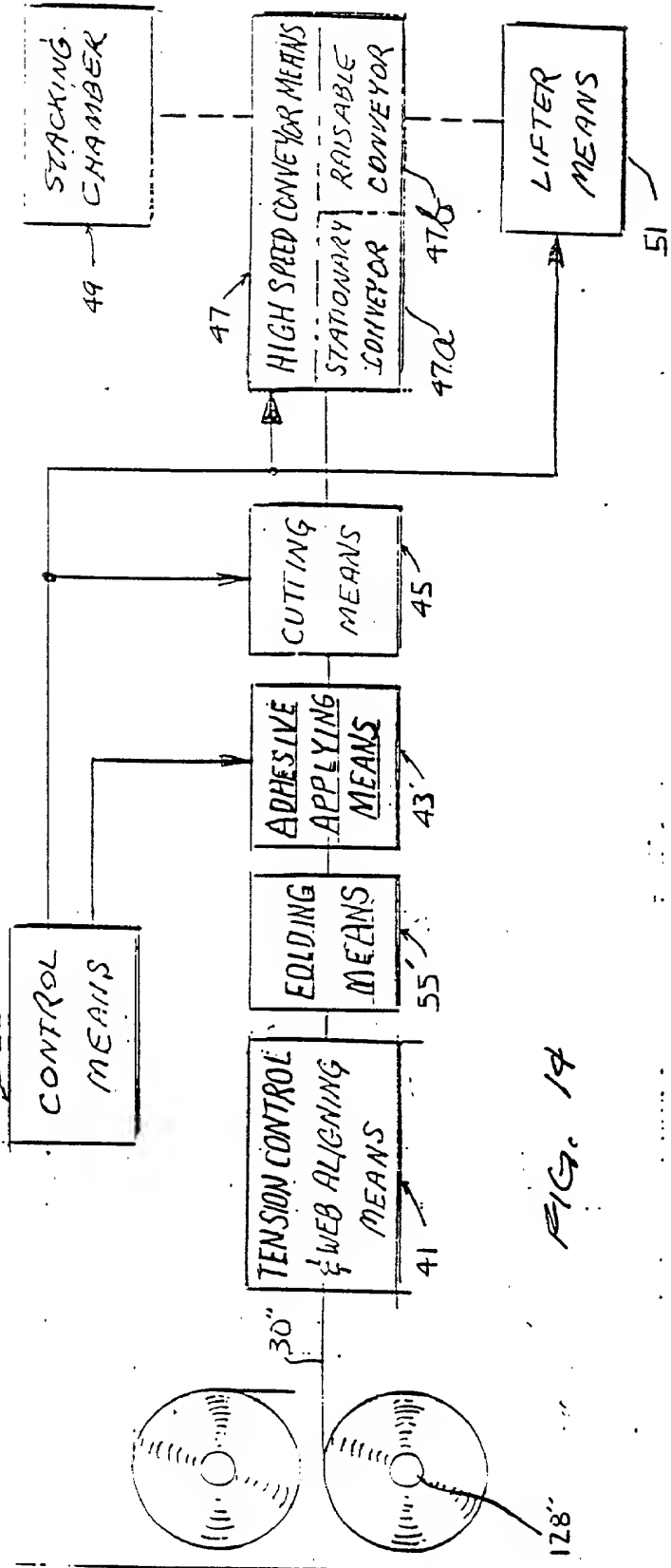
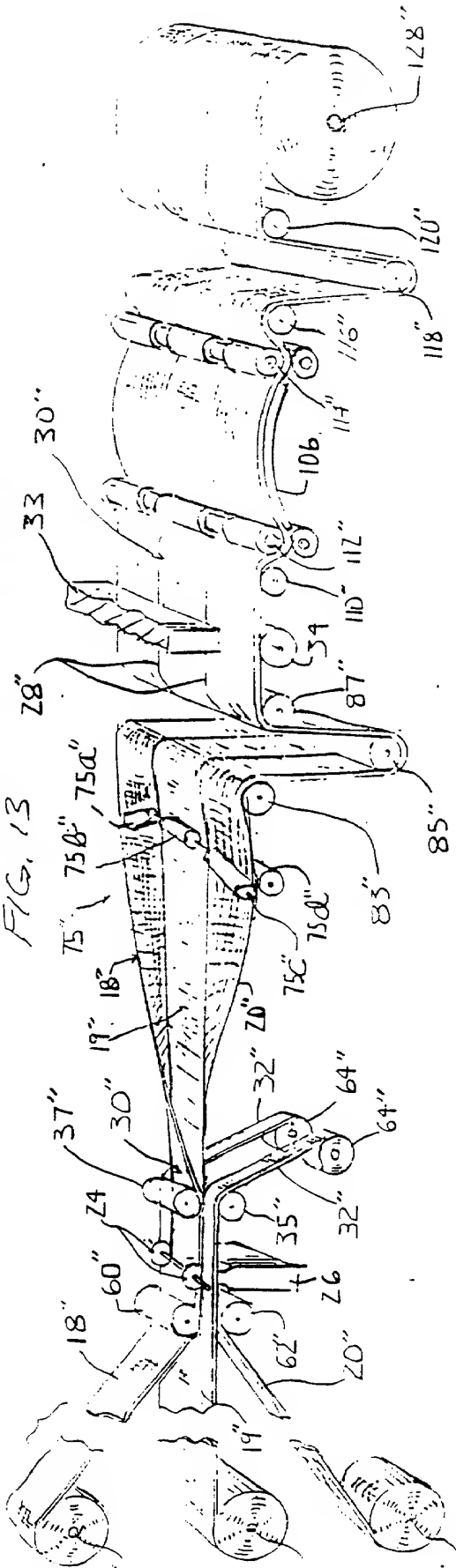
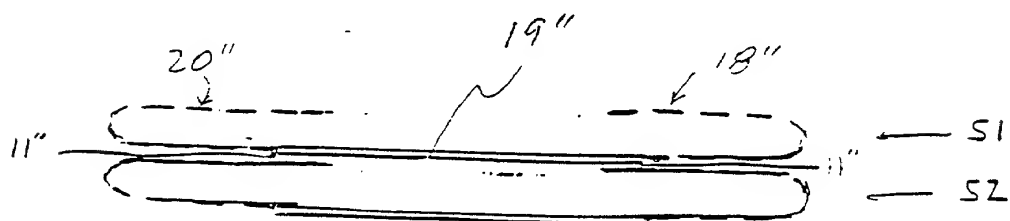
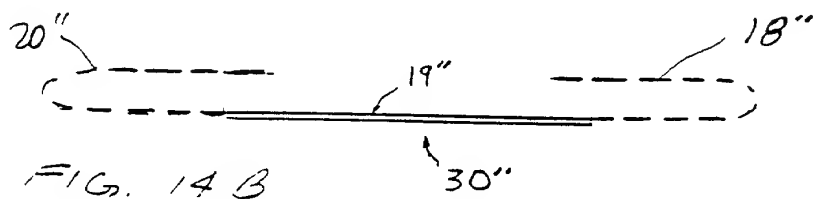
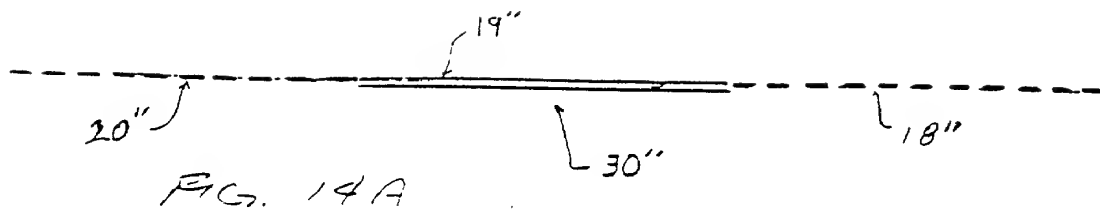
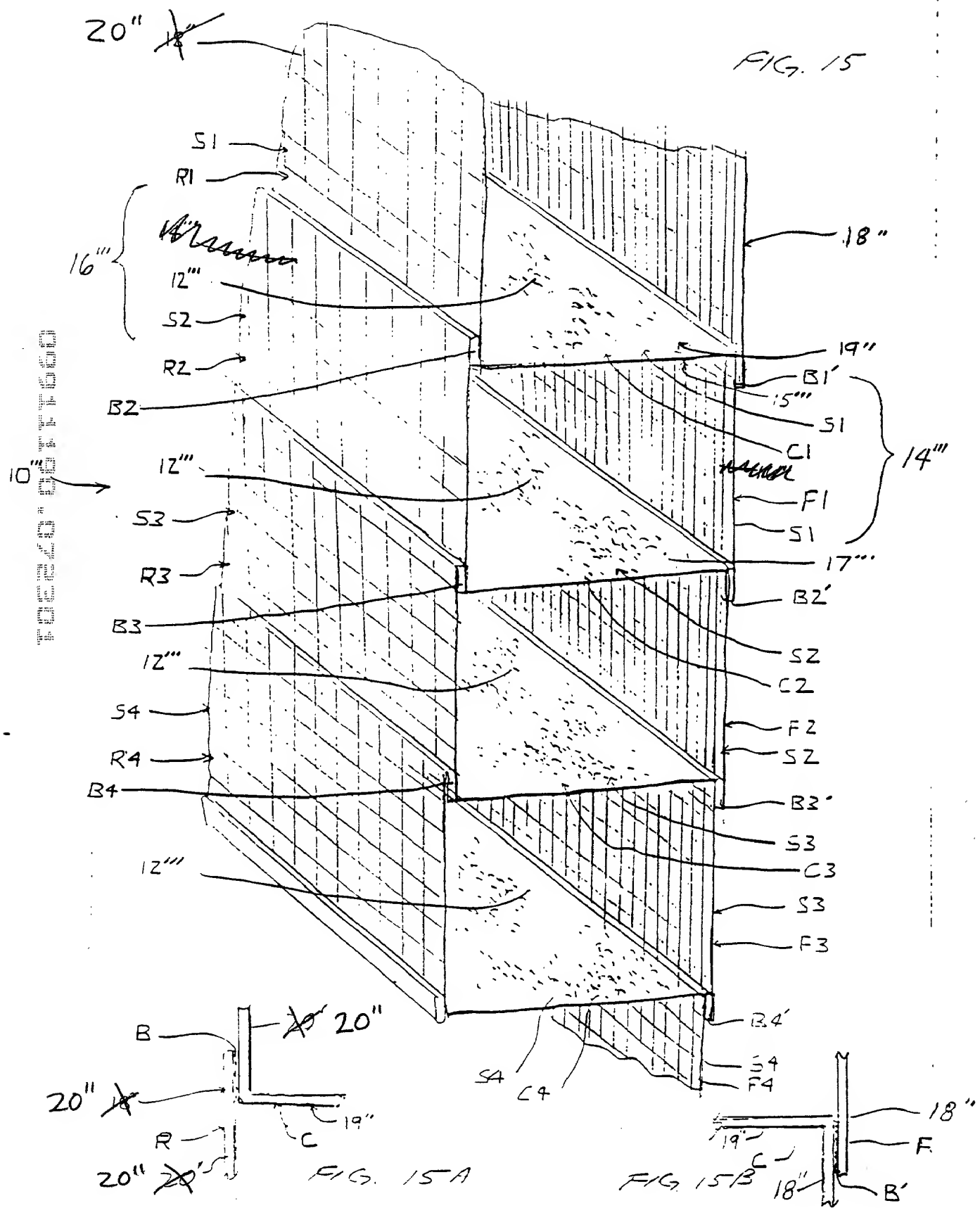


FIG. 14





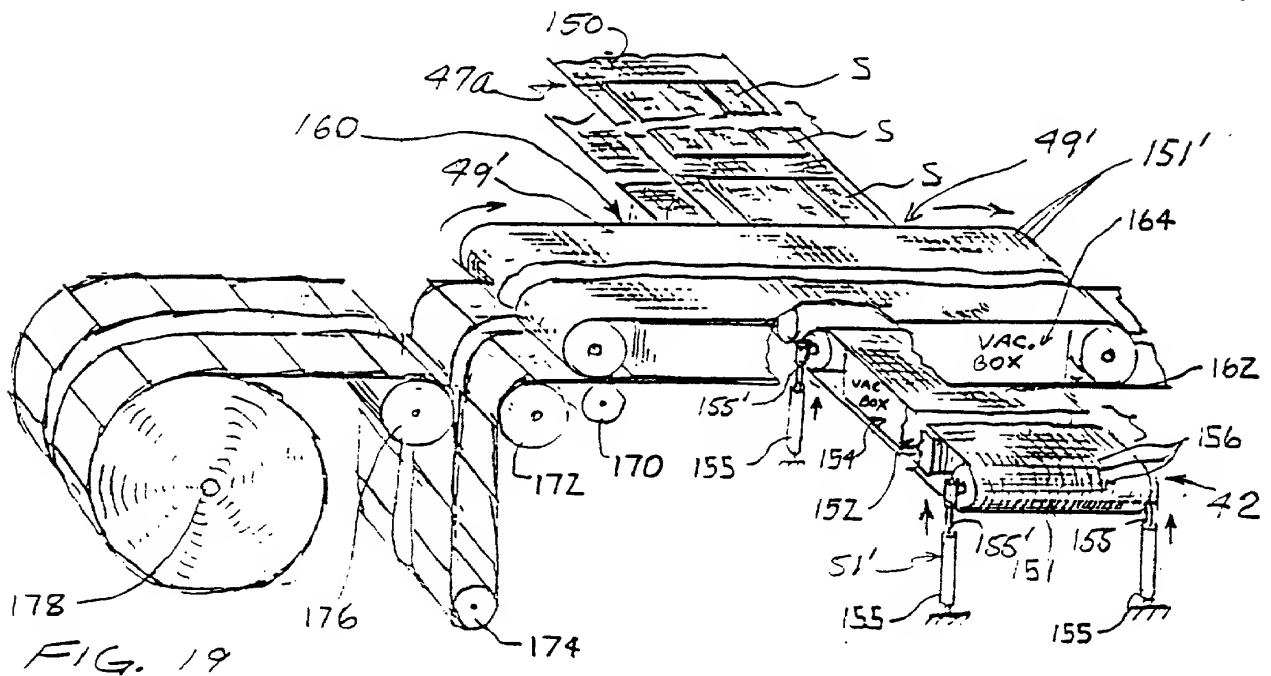
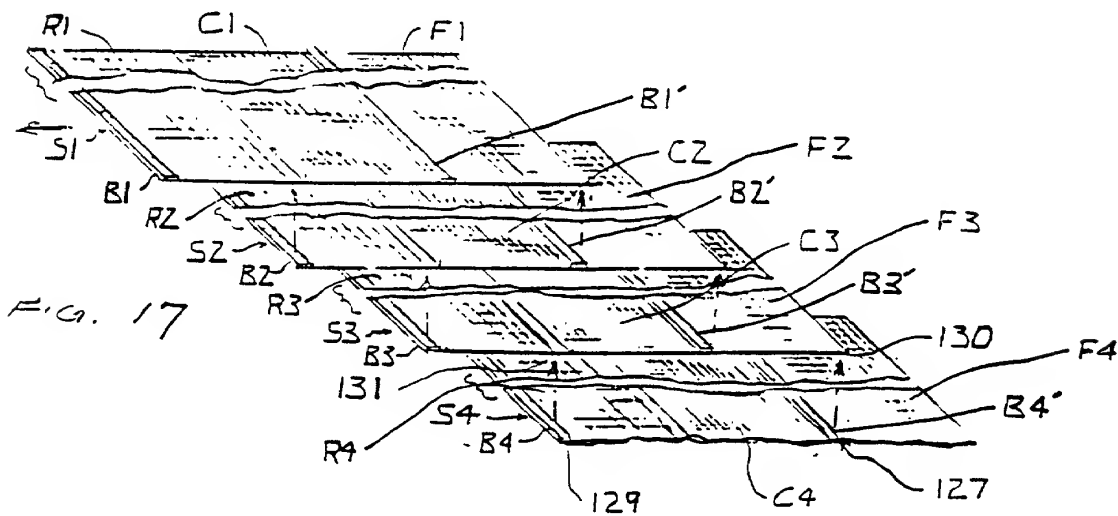
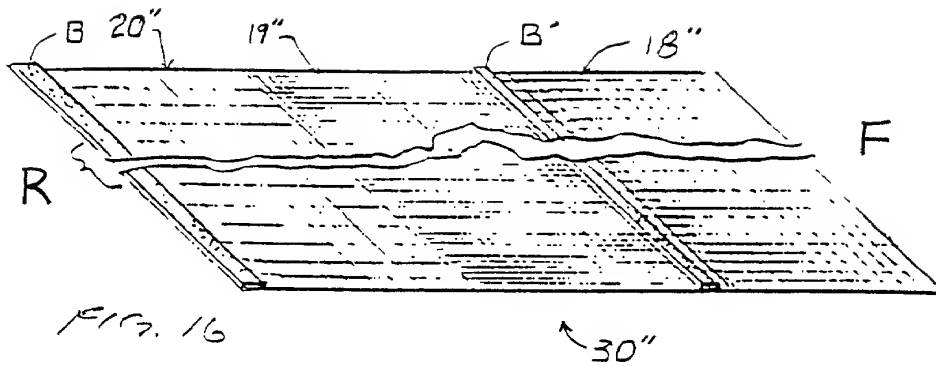


FIG. 18

